PATENT CLAIMS

1. Method for tempering, such as cooling, of a number of packaged product units in a treatment tank, by using a coolant in the form of a mixture of ice cubes and water, characterised in that an ice slurry of water and ice particles is utilised in the treatment tank and the mixture is circulated around the units in order to cool the units.

2. Method according to claim 1, characterised in that an ice slurry is utilised in which the ratio of ice crystals is 25% and with a temperature of -2.5°C.

3. Method according to claim 1-2, characterised in that the mixture is circulated around the units to be cooled in that the slurry is pumped in a circulation in the treatment tank in which the product units are submerged, by using a pumping plant (56) with injection nozzles, for example 3 injection nozzles.

4. Method according to any of the preceding claims, characterised in that the water is a saline brine of approx. 2% in the form of a mixture of salt dissolved in fresh water, as the water is mixed with ice particles to form an ice slurry with the consistency required to allow for pumping.

5. Method according to any of the preceding claims, characterised in that the salt water/brine consists of approx. 25 weight % ice crystals, 2 weight % NaCl (cooking salt) and the rest fresh water, whereby the saline solution allows for the water temperature in the actual ice slurry to be reduced to approx. -2.5°C without the water freezing.

6. Method according to any of the preceding claims, characterised in that the ice slurry which is pumped out in the tank (50) is taken out from the upper layer of the tank via an overflow trough.

7. Method according to any of the preceding claims, characterised in that that when the temperature in the ice slurry reaches approx. +0.5°C, the ice slurry is pumped back to a supply tank (20) in which ice slurry is prepared with an adequate ratio of ice crystals from an ice crystal machine and cooling

temperature, such as an ice crystal ratio of 15-25%, especially 25% and a temperature of -1 to -2°C, especially -1.5°C.

8. Method according to claim 7, characterised in that the ice slurry in the supply tank (20) is kept in a condition which allows for pumping by stirring it with a paddle mechanism.

9. Method according to any of the preceding claims, characterised in that the ice slurry is circulated between a number of treatment tanks (50) for product units and the slurry supply tank (20), in that a number of treatment tanks in series or on parallel are utilised for tempering of the product units.

10. Method according to any of the preceding claims, characterised in that the treatment tanks (50) are utilised in order, one after the other.

11. System for tempering, such as cooling, of units of packaged products by using a coolant in the form of a mixture of ice and water (ice slush/slurry), characterised by:

a) one or more treatment tanks (50) for the product units, and
b) means of circulation of the coolant around and in between the product units submerged in the treatment tub (50).

12. System according to claim 11, characterised in that the upper part of the tank comprises an overflow funnel (58) for outlet of ice slurry, as the funnel is connected with a number of ejection nozzles (60,62,64) for injection of the ice slurry, via a pipe (52) with a connected pump (56).

13. System according to claims 11-12, characterised in that the one or more treatment tanks are connected to a supply tank (20) in which an ice slurry is prepared, and that the system comprises means for circulation of the ice slurry between the treatment tank(s) (50) and the supply tank (20).

14. System according to any of the claims 11-13, characterised in that it also comprises:

e) a transport organ, such as a conveyor belt, for continual transport of a set or a number of product units to the treatment tank(s) (50) for cooling with suspension for the required period of time.

15. System according to any of the claims 11-14, characterised in that the means for circulation of ice crystal/water coolant around and in between the product units comprises injector nozzles and a pump system for pumping of the slurry/suspension.

16. Application of method and system according to the preceding claims for treatment of vacuum packed products, especially food stuff, which are to be cooled.

17. Application of method and system according to claim 12 whereby a large number of vacuum bags are treated hanging side by side on a rack, and which have just been through a process of heat treatment in an oven, after which the rack with the bags is transported to the cooling tub and totally submerged in the cooling slurry tank for cooling for the required period of time.